

**REMARKS**

Claims 22-32 remain in this application. Claims 1-21 have been canceled. The Examiner asserts that because Applicants have constructively elected claims 22-25, claims 26-32 are withdrawn. Applicants traverse this restriction requirement as improper. Applicants further point out that the rejection of claims 22-25 is improper under 35 U.S.C. 102.

**Election Requirement Traverse:**

Applicants hereby traverse the election requirement listed in section 5 of the Office Action, on pages 4 and 5. For the reasons set forth below, Applicants request the Examiner reconsider the restriction requirement. This traverse also preserves Applicants' rights to petition under 37 CFR 1.144.

**The Examiner has Failed to Provide A Proper Requirement for Restriction:**

The restriction requirement is not proper and should be withdrawn because the Examiner has failed to provide any reasoning whatsoever for the restriction requirement. To provide a proper requirement for restriction, the inventions must be independent or distinct and there must be a serious burden on the Examiner (MPEP 803). The Examiner must provide reasons and or examples to support conclusions; a conclusion without its reasons is insufficient and inadequate (MPEP 803, 808, 816). As the Examiner has only set forth a conclusion and has provided absolutely no reasons whatsoever, the restriction requirement is improper.

Rather than stating reasons for the restriction requirement, the Examiner has simply stated the conclusion that claims 23-32 include four different species (see section 5 of the

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Office Action, pages 4-5). The Examiner has provided absolutely no reasoning showing why claims 23-32 are four different species. The Examiner has provided absolutely no reasoning showing why the alleged four different species are a serious burden on the Examiner. As the restriction requirement is completely bereft of reasoning, it is not a proper restriction requirement and it should be withdrawn.

Examiner's Conclusion of Four Different Species is Incorrect:

The Examiner appears to be making a genus-species type of restriction requirement. The Examiner states that claims 25-32 "contains claims directed to the following patentably distinct species of the claimed invention," lists "Species" I-B- through I-B-4, and states that it appears claim 22 is "a generic claim to the Group I-B." (Office Action, pages 4 and 5.)

For claims to be restricted to different species, the claims must be mutually exclusive (MPEP 806.04(f)). Because none of species I-B-2 through I-B-4 is mutually exclusive to species I-B-1 or to each other, the restriction requirement does not meet the criteria set forth in MPEP 806.04(f). The restriction requirement should be withdrawn.

The paragraphs below describe how Species I-B-1 is not exclusive to any of Species I-B-2 through I-B-4. They further describe how none of Species I-B-2 through I-B-4 is mutually exclusive to each other. Because none of the alleged species set for by the Examiner are mutually exclusive, the restriction requirement does not meet the criteria set forth in MPEP 806.04(f). The restriction requirement is improper and should be withdrawn.

*Species I-B-2: Claims 26, 27, and 32 are Not Mutually Exclusive to Species I-B-1*

Claim 26 recites that the top conductor and the conductive material in the well and via hole are regions of a continuous conductive volume. Such a continuous conductive volume may be present if the via hole extends all the way through the bottom conductor, as in claim 23. Such a continuous conductive volume may be present if the second dielectric layer is

etched to result in a volume under the bottom conductor, as in claim 24. Such a continuous conductive volume may be present if the volume under the bottom conductor is an anchor volume and the conductive material substantially fills the anchor volume, as in claim 25. None of claims 23-25 rules out such a continuous conductive volume. Thus, as there is nothing in claims 23-25 that is exclusive to claim 26, the restriction is not proper under MPEP 806.04(f).

Claim 27 recites that the conductive material of the top conductor and the conductive material in the well and via hole are deposited by the same deposition process. Such conductive material deposited by the same deposition process may be present if the via hole extends all the way through the bottom conductor, as in claim 23. Such conductive material deposited by the same deposition process may be present if the second dielectric layer is etched to result in a volume under the bottom conductor, as in claim 24. Such conductive material deposited by the same deposition process may be present if the volume under the bottom conductor is an anchor volume and the conductive material substantially fills the anchor volume, as in claim 25. None of claims 23-25 rules out such a use of a deposition process. Thus, as there is nothing in claims 23-25 that is exclusive to claim 27, the restriction is not proper under MPEP 806.04(f).

Claim 32 recites that the first and second dielectric layers, the bottom conductor, and the continuous conductive volume are all parts of a package substrate, that a dic is connected to a first side of the package substrate, and that a second side of the package substrate is connected to a printed circuit board. None of claims 23-25 rules out such an arrangement. Thus, none of claims 23-25 are exclusive to claim 32. The restriction is not proper under MPEP 806.04(f).

*Species I-B-3: Claims 28-30 are Not Mutually Exclusive to Species I-B-1*

Claim 28 recites that removing the section of the second dielectric layer comprises removing material from the second dielectric layer with a laser. Claims 29 and 30 specify types of lasers. As none of claims 23-25 specify how the section of the second dielectric layer is removed, any method to remove the section of the second dielectric layer may be used and still fall within the scope of claims 23-25. Thus, claims 23-25 are not exclusive to claims 28-30. The restriction is not proper under MPEP 806.04(f).

*Species I-B-4: Claim 31 Is Not Mutually Exclusive to Species I-B-1*

Claim 31 recites that the well has a width in a range from about 62 micrometers to about 82 micrometers. As none of claims 23-25 specify the width of the well, wells of any width fall within the scope of claims 23-25. Thus, claims 23-25 are not exclusive to claim 30. The restriction is not proper under MPEP 806.04(f).

*None of Species I-B-2, I-B-3, or I-B-4 Are Mutually Exclusive*

Various claims of species I-B-2 recite characteristics of the conductive material that forms the top conductor and is in the well and via hole, and further recites that the elements are part of a package substrate connected to a die and printed circuit board.

Various claims of species I-B-3 recite that removing the section of the second dielectric layer comprises removing material from the second dielectric layer with a laser and specify types of lasers.

The claim of species I-B-4 recites a range of widths of the well.

As the claims of species I-B-2 do not specify how material is removed from the second dielectric layer, any method to remove the section of the second dielectric layer may be used and still fall within the scope of species I-B-2. Thus, species I-B-2 is not exclusive to species I-B-3. The restriction is not proper under MPEP 806.04(f).

As the claims of species I-B-2 do not specify the width of the well, wells of any width fall within the scope of the claims of species I-B-2. Thus, species I-B-2 is not exclusive to species I-B-4. The restriction is not proper under MPEP 806.04(f).

As the claims of species I-B-3 do not specify the width of the well, wells of any width fall within the scope of the claims of species I-B-3. Thus, species I-B-3 is not exclusive to species I-B-4. The restriction is not proper under MPEP 806.04(f).

**Claim Rejections:**

Claims 22-25 were rejected under 35 U.S.C. 102(b) as being anticipated by Bindra et al. (US 5,129,142) (hereinafter "Bindra").

The Examiner has not set forth a *prima facie* rejection of claim 22 under 35 U.S.C. 102(b); the rejection is unsupported in the art and should be withdrawn. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Bindra fails to disclose each and every element of claim 22 because Bindra fails to disclose removing a section of the bottom conductor to result in a via hole as is recited in claim 22; the rejection is unsupported in the art and should be withdrawn.

The Examiner's statement on page 6 of the Office Action mailed March 10, 2005 (and incorporated by reference in the current Office Action) that Brinda discloses, "removing a section of the bottom conductor (cf. Fig. 2C, 3) to result in a via hole (Cf. Fig. 2C, 8)," is not true. Rather than Brinda disclosing removing a section of the bottom conductor (3) to form via hole (8), Brinda discloses forming a via hole (8) by removing a section of the dielectric (1). This can be clearly seen by comparing Figs. 2B and 2C of Brinda. The specification of Brinda confirms this, stating, "2B shows 2B after the via holes (8) and lands (7) have been

opened up in the **dielectric material.**" (Col. 5, lines 26-28; emphasis added.) Removing a section of the dielectric, as recited by Bindra, is not the same as removing a section of the bottom conductor, as is recited in claim 22. As the rejection is unsupported by the art, Applicants request that the Examiner withdraw it.

The Examiner's comment on page 6 of the Office Action does not rectify the failure of Bindra to disclose **removing a section of the bottom conductor** to result in a via hole as is recited in claim 22. Nothing in the comment points out where Bindra discloses **removing a section of the bottom conductor** to result in a via hole. Rather, the comment discusses whether or not vias or internal layers are connected. Whether or not vias or internal layers are connected does not change the fact that Bindra fails to disclose **removing a section of the bottom conductor** to result in a via hole.

As Bindra does not disclose removing a section of the bottom conductor to result in a via hole, the Examiner has not set forth a *prima facie* rejection under 35 U.S.C. 102. Applicants request that the Examiner either point out where Bindra discloses **removing a section of the bottom conductor** to result in a via hole or withdraw the rejection.

Claims 23-25 depend from claim 22. The rejections of claims 23-25 are thus also unsupported in the art for the reasons provided above. The rejections of claim 23-25 should be withdrawn.

Should the Examiner withdraw the rejection based on the Bindra reference or assert a new rejection based on other art (as the Examiner appears to be doing on page 6 of the Office Action by asserting the Lazzarini reference, a reference not used in the original rejection) a Final Office Action would not be proper because Applicants have not amended the only

independent claim at issue. If the Examiner is making a rejection based on Lazzarini or another new rejection, a non-final Office Action should be issued.

Respectfully submitted,

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**CERTIFICATE OF TRANSMISSION**  
(37 C.F.R. § 1.8(a))

I hereby certify that this correspondence is being transmitted by facsimile to the United States Patent and Trademark Office on September 22, 2005.

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